GESELLSCHAFT DEUTSCHER CHEMIKER

*Ortsverband Osnabrück*

# Boron Clusters as Superchaotropic Anions for Supramolecular Chemistry and Drug Delivery

**Prof. Dr. Werner Nau**

*Constructor University, Bremen*

Following up on scattered reports about interactions of conventional chaotropic ions (e.g., $I^-$, $SCN^-$, $ClO_4^-$) with macrocyclic host molecules, biomolecules, and hydrophobic neutral surfaces in aqueous solution, the chaotropic effect has emerged as a generic driving force for supramolecular assembly, orthogonal to the hydrophobic effect. The chaotropic effect becomes most effective for very large ions that extend beyond the classical Hofmeister scale, and that can be referred to as superchaotropic ions among which borate cluster anions are the prototypes. We present a continuous scale of water-solute interactions which includes the solvation of kosmotropic, chaotropic, and hydrophobic solutes. Recent examples for the soft-matter association of chaotropic anions to hydrophobic macrocyclic binding sites, lipid bilayers, peptides, and proteins as well as a new application line will be described. Namely, we describe the use of superchaotropic anions as transmembrane transporters in cell biology and drug delivery, including boron clusters and metallacarborane ions.

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Besucher sind herzlich willkommen!

**Der Ortsverbandsvorsitzende:**
Prof. Dr. Andreas Hennig, Chemie Osnabrück, Universität Osnabrück
Tel.: 0541 969-2495; Email: andreas.hennig@uni-osnabrueck.de